

# PETITION

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Your Petitioner, Christian Noël Guy Legrand, citizen of Belgium and resident of Thailand, whose residence and mailing address is 100/203 Chonlada Village , District Ban Bua Thong, Nonthaburi Province 11110, Kingdom of Thailand, prays that Letters Patent Protection be granted to him for a

## **FOAM BOOK WITH IMPROVED BINDING AND METHOD II**

as set forth in the following specification:

### **Cross-Reference to Related Foreign Patent**

This application claims priority based on a foreign patent, specifically on the Thailand Petty Patent Serial No. 0303000006 filed January 3, 2003.

### **Background of the Invention**

#### **1. Technical Field**

The present invention relates to binding methods for books and, more particularly, to a binding apparatus and method for foam books which includes a cover sheet having a front cover page section, a rear cover page section and a spine section extending between and connecting the front and rear cover page sections, at least two center foam pages positioned between the front and rear cover pages, and at least two binding sheets, each of the center foam pages mounted on one of the binding sheets, the binding sheets connecting adjacent center foam pages and further connecting the center foam pages to the inner surfaces of the front and rear cover page sections such that the pages are secured to one another and to

1 the cover sheet to securely bind the book.

## 2 3 **2. Description of the Prior Art**

4 There are many different kinds of books and bookbindings which  
5 are currently used in the publishing industry. While the majority  
6 books are constructed of paper and paper products, there are many  
7 types of children's books which are constructed of different  
8 materials such as cloth, foam or the like, in order to provide  
9 additional tactile sensations for the children reading the books.  
10 Currently, it is becoming popular to manufacture children's books  
11 from thin plates of foam which constitute the pages and front and  
12 rear covers. These are bound in various types of ways such as by  
13 gluing the pages to one another, stapling the pages or binding them  
14 with a loom as is done with paper-paged books. Each of these  
15 binding methods includes inherent defects, however, such as that  
16 books bound with staples will become rusty and eroded when exposed  
17 to water, those bound with a loom will wear out due to the  
18 construction method and materials and books bound with glue tend to  
19 not last very long when used by children due to the intensity of  
20 the use to which they are subjected. There is therefore a need for  
21 an improved book construction for children's foam books which will  
22 overcome many of the deficiencies found in the prior art.

23 Bookbinding generally has three popular types that have been  
24 used for a long time are: (1) Bookbinding by sewing/gluing is  
25 taking the book to be sewn by the equipment so called sewing by  
26 cord. After that the book spine is glued, the sewn pages are  
27 attached to the cover; (2) Bookbinding by the spine planing-gluing

1 is to plane the sheets with a planing knife so the book spine can  
2 be serrated (for the glue can be applied as much as possible and  
3 glued to the cover); and (3) Bookbinding by stitching the roof is  
4 stitching the sheets to the covers using staples. While each of  
5 these prior art methods and devices will bind the pages of the book  
6 together, none of them fully addresses and solves the deficiencies  
7 inherent in the prior art, specifically that spine-connecting  
8 binding methods will quickly wear out and result in pages of text  
9 being lost.

10 It is therefore a object of the present invention to provide  
11 a foam book having an improved binding.

12 Another object of the present invention is to provide a foam  
13 book with an improved binding which will substantially increase the  
14 durability and longevity of the book.

15 Another object of the present invention is to provide a foam  
16 book having an improved binding in which the pages of the book are  
17 connected to one another by a series of connected foam plates to  
18 which the thicker pages of the book are attached.

19 Another object of the present invention is to provide a foam  
20 book having an improved binding in which the foam plates are  
21 approximately twice the width of the attached pages so that the  
22 foam plates can be securely adhered to the pages.

23 Another object of the present invention is to provide a foam  
24 book having an improved binding which will permit a virtually  
25 unlimited number of pages to be bound together without sacrificing  
26 the binder strength and longevity.

27 Finally, an object of the present invention is to provide an  
28

1 improved foam book with an improved binding which is relatively  
2 simple to manufacture and is safe and durable in use.

## Summary of the Invention

The present invention provides a method of binding a book including the steps of providing a front cover page, a rear cover page and at least two center pages each constructed of a foam material and providing at least two binding sheets. A first one of the at least two center pages is mounted on a first one of the at least two binding sheets with at least a connection portion of the first binding sheet being free of coverage by the first center page. Another one of the at least two center pages is mounted on another one of the at least two binding sheets with at least a connection portion of the another binding sheet being free of coverage by the another center page. The first center page is then mounted on one of the front and rear cover pages and the connection portion of the first binding sheet is connected to an adjacent one of the at least two center pages. The connection portion of the another binding sheet is then connected to one of the front and rear cover pages opposite the mounting of the first center page and the method results in the at least two binding sheets connecting the at least two center pages to adjacent center pages and to at least one of the front and rear cover pages for binding the front cover page, the rear cover page and the at least two center pages in book format.

The improvements of the present invention over the prior art are easily seen and include the fact that the use of the binding sheets for secure adjacent pages to one another eliminates the likelihood that the spine of the book will eventually give out and release the center pages, as the pages are not connected to the

1 spine at all. Furthermore, the elimination of staples as a binding  
2 agent eliminates the possibility of injury due to contact with the  
3 staples, as the binding sheets which are used in the present  
4 invention are soft and flexible. Furthermore, the appearance and  
5 durability of the book of the present invention is significantly  
6 enhanced due to the use of the binding sheets, and it is fully  
7 expected that various types of binding sheets and pages may be used  
8 which provide further enhancement to the book. Also, the use of  
9 the foam material is ideal for children's books, as it is safe and  
10 pliable and floats in water. Finally, because a virtually  
11 unlimited number of center pages may be bound together using the  
12 method of the present invention, the restrictions on the size,  
13 thickness and shape of the book formerly dictated by the prior art  
14 binding methods are substantially eliminated. It is therefore seen  
15 that the present invention provides a substantial improvement over  
16 those devices found in the prior art.

## **Brief Description of the Drawings**

Figure 1 shows the format of the book upon assembly completion.

Figure 2 shows the sheets separated from the covers (boards) (figure 3).

Figure 3 shows the part that is the boards with the Velcro sticking out to catch the other side to hold down the sheets.

Figure 4 is the width of the covers of the open book to show the rough surface is 4.2 and the smooth surface, while the front cover is 4.3 and the back cover is 4.4. while the book spine is 4.5, which is not glued.

Figure 5 shows the format of the book after the assembly in the horizontal position as illustrated.

Figures 6, 7, 8, 9 and 10 illustrate the book assembly.

## **Description of the Preferred Embodiment**

The book with improved binding **10** of the present invention is shown best in Figures **1-10** as including a cover sheet **12** having a front cover page **13**, a rear cover page **14** and a spine **15** connecting the front and rear cover pages **13** and **14**. In the preferred embodiment, a book closing flap **40** is connected to and extends outwards from the front cover page **13** for securing the front and rear cover pages **13** and **14** to one another in closed position, although it should be noted that many different types of book access securement devices may be implemented with the present invention. Also, the book **10** will include a plurality of center pages **16a**, **16b**, **16c** and **16d** which are aligned in traditional book format. In the preferred embodiment, each of the pages **16a**, **16b**, **16c** and **16d** would be constructed of a foam material, specifically the foam marketed under the common name "EVA foam." "EVA foam" is a polymer foam made of ethyl-vinyl acetate and is particularly well-suited for the present application as it is safe, non-toxic and may be printed on quite easily. Furthermore, it is pliable and floats in water, thus making it a very suitable material for the construction of children's books. However, it should be noted that numerous other types of materials are suitable for use with the present invention so long as the safety and convenience feature of the present invention are maintained.

The binding method of the present invention is shown best in Figures **6-10** as including the following steps. Initially, a first binding sheet **20a** of EVA foam is supplied, first binding sheet **20a** having a width approximately equal to the total width of front



1 cover page **13** and rear cover page **14**, excluding the spine **15**.  
2 First binding sheet **20a** serves as a base to which the first center  
3 page **16a** is attached, as shown best in Figure **6**, with first center  
4 page **16a** being glued to the upper surface of first binding sheet  
5 **20a**. By gluing the back surface of first center page **16a** to the  
6 upper surface of first binding sheet **20a**, the first center page **16a**  
7 forms a two-sided page to which lettering, pictures or other such  
8 indicia may be applied. The first binding sheet **20a** extends and is  
9 connected to a second center page **16b** by gluing or the like such  
10 that the second center page **16b** is hingedly attached to the first  
11 center page **16a** via the first binding sheet **20a**, as shown in Figure  
12 **7**. In this step of assembly of the book, the first binding sheet  
13 **20a** may be attached to the top or bottom side of the second center  
14 page **16b**, although it is preferred that the first binding sheet **20a**  
15 be attached to the bottom side of the second center page **16b** as  
16 shown in Figure **7**. The remaining center pages **16c** and **16d** would be  
17 connected in turn to an adjacent one of the center pages, starting  
18 with the second center page **16b**, by third, fourth, etc. binding  
19 sheets **20c**, **20d**, etc., as was described in connection with the  
20 binding of first and second center pages **16a** and **16b**.

21 When the binding of the center pages **16a**, **16b**, **16c** and **16d** to  
22 one another is completed as described above, the center pages **16a**,  
23 **16b**, **16c** and **16d** are bound to the front cover page **13** and rear  
24 cover page **14** by gluing the outer face of the rearmost center page  
25 **16a** directly to the rear cover page **14** and by gluing the unsecured  
26 section of the topmost binding sheet **20d** to the front cover page  
27 **13**, as shown best in Figure **10**. Upon the center pages **16a**, **16b**,  
28

1 **16c** and **16d** being secured within the cover sheet **12**, the book  
2 binding method of the present invention is substantially completed,  
3 resulting in the bound book **60** shown in Figures **1** and **2**. The  
4 binding method of the present invention thus does not require the  
5 connection of the center pages **16a**, **16b**, **16c** and **16d** to the spine  
6 **15** which is a source of weakness for many bound books.  
7 Furthermore, the binding method of the present invention does not  
8 restrict the number of pages or the size of the book due to the  
9 bound strength of the book, as each page is attached to the one  
10 adjacent. The spine of the book thus is not forced to carry the  
11 entire strength of the book.

12 An alternative description of the method of the present  
13 invention follows. Figure 1 shows the format of the book upon  
14 assembly completion. Figure 2 shows the sheets separated from the  
15 covers (boards) (Figure 3). Figure 3 shows the part that is the  
16 boards with the Velcro sticking out to catch the other side to hold  
17 down the sheets. Figure 4 is the width of the covers of the open  
18 book to show the rough surface is 4.2 and the smooth surface, while  
19 the front cover is 4.3 and the back cover is 4.4. while the book  
20 spine is 4.5, which is not glued. Figure 5 shows the format of the  
21 book after the assembly in the horizontal position as illustrated.

22 Figure 6 shows the book assembly. First, bring two pieces of  
23 EVA Foam that is part 6.1 with its length equals to the covers in  
24 figures 4.3 + 4.4 (that is the length of the cover excluding the  
25 spine). It acts like a base sheet to be assembled with the part  
26 E 1 the length equal to one half of the part 6.1 to be attached to  
27 its spine as illustrated. By gluing on the back of E 1 to be  
28

1 attached with the part of 6.1 in the back to have a double page  
2 book. Figure 7 is the step in assembling of part 2 to the book by  
3 using two EVA Foam pieces, part of 7.1 with the length of the EVA  
4 foam equals to the covers as in Figures 4.3 + 4.4 (the length of  
5 the covers excluding the spine). They act as the base to be  
6 assembled with part E 1 having the length equals to one half of the  
7 piece 7.1 to be attached to the back as illustrated. By gluing on  
8 the back of E 2 to the part of 7.1 in the back to have another  
9 double page book. Figures 8 and 9 are repetitions of Figures 6 and  
10 7 until they achieve the numbers of pages as required (which equals  
11 to the thickness of the spine as in Figure 1, and when viewing from  
12 the above angle to show as in Figure 10.

13 It is to be understood that the book with improved binding **10**  
14 of the present invention may include numerous additions,  
15 modifications and substitutions which will fall within the intended  
16 broad scope of the appended claims. For example, although the  
17 present invention has been described as being used in connection  
18 with binder cover and center pages **12** and **16a-d**, it should be noted  
19 that two separate cover pages it is common in the book production  
20 field to fold pages over to form two pages joined by a crease,  
21 particularly with children's books in connection with the front and  
22 rear cover pages **12** and **14**. These are often formed from a single  
23 longer piece of foam which is folded over to form the front and  
24 rear cover pages **12** and **14**. Furthermore, the specific materials  
25 used in connection with the present invention may be modified or  
26 changed so long as the intended functional and use aspects of the  
27 invention are maintained. This would include substitution of

1 various types of foam for the pages of the book and the  
2 substitution of various types of appropriate non-toxic waterproof  
3 adhesive or binding compound for the securement of the pages to one  
4 another in the methods of construction. In this manner, pages of  
5 various sizes and shapes may be bound to one another by utilizing  
6 the apparatus and methods of the present invention.

7       There has therefore been shown and described a foam book with  
8 improved binding and method which accomplishes at least all of its  
9 intended objectives.